

More Odonata records from Thailand

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In 2009 and 2010 we made several visits to Thailand and made collections and photographs of odonates which were treated by the first author. VZ, a coleopterologist, and AK travelled to Central and North Thailand in late July-August 2009 and May-June 2010; their collections are kept partly at the Institute of Systematics and Ecology of Animals of Siberian Branch of Russian Academy of Sciences and AK's private collection. Earlier collected specimens from his collection were also treated. NV, a dipterologist, travelled in North, East, Central and Peninsular Thailand in November-December 2009 and 2010. His collection is kept with OK. In April 2010, OK had an opportunity to observe several odonate individuals at Trat. NV managed to record two species for the first time for Thailand while all made a number of new provincial records; i.e., not mentioned in Hämäläinen and Pinratana, 1999, Ferro et al., 2009 and smaller publications. Most of these new records were unsurprising, and were kindly confirmed as new by Dr. Matti Hämäläinen, except for those for Mae Hong Son Province, for which he has unpublished data.

New records for Thailand

Two new records were made by NV in Phang Nga Province.

Mortonagrion arthuri Fraser, 1944: 9 ♂, 5 ♀ collected, also photographed – Similan Island No.4. (8.57° N 97.635° E) , 12.12.2009.

This species appeared to be rather common in the canopy shade of a forest with dense coppice, and also at a shady path, not far from an

almost dried out temporal brook with a silty bed (but not at its banks). Identification was unmistakable by the elaborate male appendages (Fraser, 1944; Asahina, 1965) and the female thoracic structures (Asahina, 1965). Both sexes were similarly coloured: they were brownish, with rather distinct black spots at the posterior end of abdominal S2-7 and black rings on S8-9, and a diffuse lilac-bluish pattern composed of two diffuse stripes on either side of the pterothorax (not well seen in all specimens), spots at the fore and rear end of the brownish part of abdominal segments, and a conspicuous spot occupying the fore half of S8 (Fig. 1). So, our males looked more or less like the immature holotype (Fraser, 1944). Judging from specimens known from Singapore (Tang et al., 2010), this colouration corresponds to mature females but mature males acquire a contrasting black-and-green or black-and-blue colouration of the thorax, and S1-2 and S7-10 become black beyond the blue spot on S8. Most probably the individuals observed and collected on the Similans were all immatures.

The known distribution of the species is remarkable. It is known from the Malcolm Island of Meguri islands, Tennaserim, Lower Burma (Asahina, 1965), being a member of the same archipelago in a broad sense as the Similans; from Butterworth (the type locality) on the western coast of Peninsular Malaysia; from five localities in Singapore (Tang et al., 2010) and from Thioman Island east of Peninsular Malaysia (Orr, 2005). [The Similan record discussed was mentioned in Tang et al. (2010) prior to this paper.] It is striking that four out of five sites from where *M. arthuri* was hitherto known are small islands around the Malay Peninsula, and only the type locality is on the mainland coast (but opposite to Penang Island). At the same time, it is found in quite different habitats. All four localities in Singapore are mangroves. At the same time the Similans and Thioman are surrounded by deep sea (and hence both are popular diving sites) and lack mangroves. In the Similans, *M. arthuri* was found in the forest. NV pointed out that the water catchment of the brook is very restricted and the water supply, from rains, should be irregular; he supposed that the larvae may tolerate temporary drought. The type locality is situated at a sandy low coast with coconut palms (Fraser, 1944).

It looks like this species is rather indifferent to a habitat type but behaves as a 'small island specialist'. This term



Fig. 1. *Mortonagrion arthuri*, a male, the Similan Island No. 4, a dry forest near a silty brook. 17.02.2009; photo by Nikita Vikhrev.

used to be applied to a number of bird species, such as the Nicobar Pigeon which inhabits the Similans as well. But a tiny damselfly cannot be a small island specialist in the same sense as a bird, which is a large and motile creature, for a bird is able to select a small island for breeding 'by intention', at the behavioural level while a damselfly is hardly 'informed' if it lives on an island or not. However, both may enjoy absence of some deleterious factors on a small island: birds' nests are safe from many terrestrial predators and the damselfly may also avoid some predators or parasites present in the mainland. We may hypothesise that *M. arthuri* was a member of biocenoses which spread over the Sunda continental shelf as it emerged from the sea and turned to land as a consequence of falling sea level during the repeated ice ages in higher latitudes in the Pleistocene. These most probably were forests but anyway were young and hence impoverished communities compared to the ancient ones on the mainland. So they may have lacked that unknown hypothetical factor which restricts distribution of *M. arthuri*. When the ocean reinvaded and the land withdrew, this damselfly might have remained as a relict on islands surrounding the Malay Peninsula. Alternatively, the species may just be adapted to habitats close to the sea and so somewhat mineralised due to aerosol transport of sea salts, or it may tolerate drought and irregular water levels at coastal brooks fed by local rains only.

Agrionoptera sexlineata Selys, 1879: 1 ♀ photographed (Fig. 2) in the environs of Khao Lak, at a small brook in a primary forest near its margin (8.760° N 98.284° E), 19.12.2009. The female steadily perched on the same stem and was not at all cautious. The thoracic and abdominal pattern, especially yellow S8, makes identification unmistakable. This species is widespread in Sundaland except Java (Orr, 2005) and so was quite unsurprising for the Malay Isthmus.



Fig. 2. *Agrionoptera sexlineata*, a female from Phang Nga Province, the Khao Lak environs, 28.02.2009; photo by Nikita Vikhrev.

Records for provinces of Thailand

Mae Hong Son Province

Heliocypha biforata (Selys, 1959): 1 ♂, 1 ♀ (NV) – Pai environs, 12-19.11.2010.

Aciagrion pallidum Selys, 1891: 1 ♀ (NV) – the same place and dates.

Copera marginipes (Rambur, 1842): 1 ♂ (NV) – the same place and dates.

Coeliccia poungyi Fraser, 1924: 1 ♂ (NV) – the same place, 7.11.2009; 1 ♂ (photo by NV) – the same place, 9.11.2009.

Brachydiplax sp. (? *farinosa* Krüger, 1902): 1 ♀ (NV) – the same place, 12-19.11.2010. Abdomen 17 mm, hind wing 24 mm. The specimen has 8 antenodals, as in *B. farinosa*, and the vulvar lamina as expected in this species but somewhat too deeply incised (Fig. 3b, c). However, the pterothorax pattern is stripy (Fig. 3a) rather than having few yellow spots, if any, on the dark background, as should be in *B. farinosa*, and corresponds to that of the Chinese taxon *B. chalybea flavovittata* Ris, 1911 (but not of *B. sobrina* (Rambur, 1842)). The abdominal black pattern is not so pronounced as in the mentioned subspecies but not so reduced as in *B. c. chalybea* Brauer, 1868. The specimen does not look very young. In this respect it is noteworthy that Donnely (1994: 86) reported from Chanthaburi Province a male of "*Brachydiplax* sp. (Krathing) like *farinosa* but with different hamule. Not *sobrina* or *chalybea*."

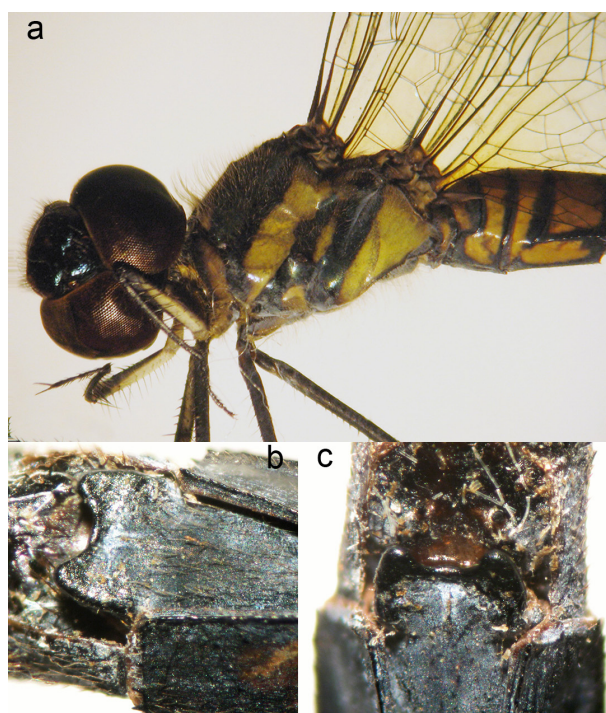


Fig. 3. *Brachydiplax* sp. (? *farinosa* Krüger, 1902), a female from Mae Hong Son Province, Pai environs, 12-19.11.2010. (a) head, thorax and base of abdomen; (b), (c) vulvar lamina.

Zygonyx iris malayana (Laidlaw, 1902): 2 ♂ (NV) – at Cave Lodge, 19.57° N, 98.28° E, 23.11.2010.

Lampang Province

Aristocypha fenestrella (Rambur, 1842): 4 ♂, 1 ♀ (VZ), 1 ♂ (AK) – 32 km S of Lampang, near Wiang Kosui National Park, ~450 m, 18°04'01" N, 99°39'52" E, 2.06.2010.

Libellago lineata (Burmeister, 1839): 1 ♂ (AK) – the same place, 2-4.06.2010.

Ceriagrion chaoi Schmidt, 1964: 1 ♂, 1 ♀ (VZ) – the same data. In male, tergites 8-10 vaguely darkened.

Coeliccia poungyi Fraser, 1924: 1 ♂ (AK) – the same data.

Heliogomphus ?svihleri (Asahina, 1970): 1 ♀ (AK) – the same data. *H. svihleri* is so far known by two females only, from Nakhon Nayok and Chiang Mai Provinces (Hämäläinen and Pinratana, 1999). Our specimen is again a female, a teneral one with the pattern just appearing on the head and thorax but still absent on the abdomen. However, the wing venation suggests *Heliogomphus* (Fig. 4a), the vulvar lamina shape agrees, while two pairs of spines, above the ocelli and on the occiput (Fig. 4b, c), are diagnostic for *H. svihleri* (Asahina, 1986). The ocellar spines are smaller and more widely set than in Asahina's figures but a teneral condition of a specimen should be taken into account in this respect.

Neurothemis tullia (Drury, 1773): 1 ♂ (AK) - the same data.

Phrae Province

Argiocnemis rubescens rubeola Selys, 1877: 1 ♀ (VZ) - 70 km SE Lampang, 280 m, 17°50' N, 100°03,6' E, 20.08.2009.

Diplacodes trivialis (Rambur, 1842): 2 ♂ (VZ) – the same data.

Kamphaeng Phet Province

Neurothemis fulvia (Drury, 1773): 2 ♂ (VZ) – Mae Wong National Park, 187 m, 15°53,7' N, 99°20,7' E, 9.08.2009; attracted by light.

Brachydiplax farinosa Krüger, 1902:
1 ♂ (VZ) – the same data.

Loei Province

Prodasineura autumnalis (Fraser, 1922): 1 ♂ (VZ) – Phu Ruea, 735 m a. s. l., 17°27'10" N, 101°29'25" E, 27.05.2010.

Macromia chaiyaphumensis Hämäläinen, 1986: 1 ♂ – the same place, 26.05.2010. The male corresponds to the original description (Hämäläinen, 1986) in all details but in addition a slight yellowish tint is noticeable at the hind wing base somewhere between the middle of the anal loop and wing anal angle.

Neurothemis fulvia (Drury, 1773): 1 ♀ (VZ) – the same place, 27.05.2010

Rhyothemis plutonia Selys, 1883: 1 ♀ (VZ) – the same data; 1 ♀ (AK) – the same place, 26-28.05.2010.

Zygonyx iris malayana: 1 ♂ (VZ) – the same place, 27.05.2010.

Uthai Thani Province

Orthetrum testaceum (Burmeister, 1839): 1 ♂ (VZ) – Thap Sela, 154 m, 15°31,7' N, 99°25,4' E, 15.08.2009.

Nakhon Ratchasima (Korat) Province

Argiocnemis minima Selys, 1877: 1 ♂ (VZ) – Nong Bun Nak village, 240 m a.s.l., 14°41,4' N, 102°27,25 E, rice fields, 13-14.05.2010; 1 ♂, 1 ♀ (AK) – the same place, without date.

Macrogomphus matsukii Asahina, 1986: 1 ♂ (AK) – the same place, 08.2009. The inner branch of the cercus is slightly longer than in the figure by Asahina (1986) and in profile protrudes a bit more backwards than the outer branch, but the head and thorax pattern and strongly ridged hamuli are distinctive and coincide with the figures

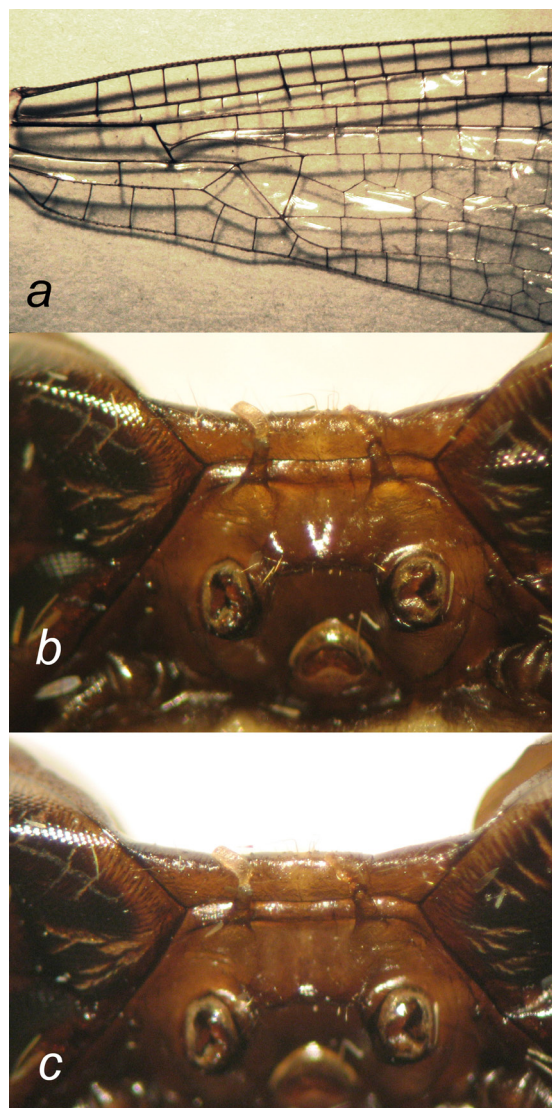


Fig. 4. *Heliogomphus ?svihleri* (Asahina, 1970): a teneral female, 32 km S of Lampang Province, near Wiang Kosui National Park, 2-4.06.2010. (a) the fore wing base; (b), (c) top of the head.

in detail. A rare species, however reported for the adjacent Saraburi Province (Asahina, 1986).

Acisoma panorpoides Rambur, 1842: 2 ♂ (VZ, rice fields) – the same place, 13-14.05.2010.

Aethriamanta brevipennis (Rambur, 1842) – the same place, 1 ♀ (22.05.2010), 1 ♀ (25.05.2010).

Indothemis carnatica (Fabricius, 1798): 1 ♂ (VZ) – the same data as above; 2 ♂ (AK) – the same place, 08.2009.

Orthetrum luzonicum (Brauer, 1868): 2 ♂ (AK) – the same place, 08.2009.

Palpopleura s. sexmaculata (Fabricius, 1787): 4 ♂ (AK) – Wat Soeng Sang, near Non Sambun village, 260 m, 14°16,5' N, 102°23,3 E, 3.08.2009.

Potamarcha congener (Rambur, 1842): 1 ♂ (VZ) – the same place, 24.07.2009; 2 ♀ (AK) – the same place, 08.2009.

Pseudothemis jorina Förster, 1904: 1 ♂ (VZ) – the same place, 29.07.2009.

Rhyothemis variegata (Linnaeus, 1763): 1 ♀ gynochromic (VZ) – the same data as above; 1 ♀ gynochromic (VZ) – the same place, 28.07.2009; 2 ♂ (VZ, in a forest) – 14.05.2010; 1 ♂, 1 ♀ gynochromic (VZ, rice fields) – 13-14.05.2010; 1 ♂ (AK) – 20.05.2010; 1 ♀ gynochromic (AK) – 20-21.05.2010; 1 ♀ gynochromic (VZ) – 22.05.2010. The capture of altogether three males, rarely collected in this species, is noteworthy. For example, M. Hämäläinen (pers. comm.) has not had male specimens from Thailand.

Zyxomma petiolatum Rambur, 1842: 1 ♂ (VZ) – the same place, 5.08.2009.

Sa Kaeo Province

Brachythemis contaminata (Fabricius, 1793): 1 ♂, 1 ♀ (AK) – Ta Phraya District, La Lu, Bankob River, 15-16.05.2010.

Lathrecista asiatica (Fabricius, 1798): 1 ♂ (AK) – the same place, 3-14.04.2007; 1 ♂ (AK) - 2-4.06.2010.

Pantala flavescens (Fabricius, 1798): 1 ♂ (VZ) – the same place, 16.05.2010; 1 ♀ (AK) – the same place, 15-16.05.2010.

Potamarcha congener: 1 ♂ (AK) – the same place, 3-14.04.2007.

Chanthaburi Province

Heliaeschna uninervulata Martin, 1909: 1 ♂ (NV) – the Khao Khitchakut National Park environs, Krating Country Resort, in a restaurant (12.820528° N 102.129596° E), 3.11.2009. The species is rare and has been reported for North, South and Central Thailand (Hämäläinen and Pinratana, 1999)

Trat Province

Ceriatrigon cerinorubellum (Brauer, 1865): 1 ♀ (a photo, OK) – a pond at Trat bus station, 11.04.2010.

Diplacodes trivialis: several ♂ visually (OK) – the same data.

Lathrecista asiatica: 1 ♂ (a photo, OK) – the same data.

Neurothemis tullia: 1 ♀ (a photo, OK) – the same data.

A note on *Coeliccia didyma* (Selys, 1863)

Fraser (1933: 160) described the male anal appendages in this species as “livid or pale yellow, the base of superiors and the apices of inferiors black”. Asahina (1984), who listed specimens from throughout Thailand and Malaysia, described them as yellowish. At the same time Orr (2005) in his pocket guide for dragonflies of Peninsular Malaysia and Singapore states they are black. They are also black in two of our males from Phang Nga Province in peninsular Thailand: 1 ♂, a brook in a hillside primary forest near Khao Khuan Kha, 5 km NE of Khok Kloi, 8°18'04.48" N, 98°20'08.80" E, 23.02.2009 (OK); 1 ♂, Khao Lak environs, 14.12.2009, (NV). Curiously, in a male collected by AK in Lampang Province (32 km S of Lampang, near Wiang Kosui National Park, 2.06.2010), the appendages are dark-brownish but the uppers gradually change to whitish dorsally from about the level of the ventral hook to the tip. All three of our females collected together with males, 1 ♀ with the male from Khao Khuan Kha and 2 ♀ with that from Lampang, differ from that depicted by Asahina (1984: fig. 8) in colouration of tergite IX which is shown as light below but with a diffuse dark dorsal stripe. In all our females it is dark below, while dorsally it is also dark in the Khao Khuan Kha female, which has just two small yellow spots in the tergite upper part, yellow in one Lampang female and with a dark stripe in the other one.

More species for the Khao Khitchakut National Park

In the last five years this park was briefly visited by NV in almost every year in the dry season, and quite a handful of species have now been recorded for it (Donnelly, 1994; Kosterin and Vikhrev, 2008, 2009). Last time it was visited by Nikita on 3-5.11.2009. In addition to the above mentioned *H. uninervulata*, on 3.11.2009 at the Krating River lower reaches (12.823° N 102.127° E) he collected a male of *Euphaea masoni* Selys, 1879, collected and photographed a male *Prodasineura verticalis* sensu Asahina (but see Hämäläinen and Pinratana, 1999) and on

5.11.2009 photographed a male *Coeliccia megumii* Asahina, 1984 at the same section of the Krating River above the waterfalls and just above the confluence of its two headwaters, where it has rather a slow current above a granite bed (12.840° N 102.129° E); that is, just at the place where *C. yamasakii* Asahina, 1984 occurred in January 2006 (Kosterin and Vikhrev, 2008). So this is the third species of *Coeliccia* registered for this park (also *C. kazukoe* Asahina, 1984 was found in 2006 (Kosterin & Vikhrev, 2008) in the forest quite above and away from this site). The Khao Khitchakut National Park appears to have a very rich fauna, which is not surprising since it is in the famous and well studied Soi Dao Mts., 20 km SW (over the mountain range) from the Khao Soi Dao National Park.

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